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Analytical trends in airlines registrations and failures in Nigeria air business

Okwudili Ben Sidiq¹, Mobolaji Stephens Stephens², Tochi Clement Nwachukwu³, Ibrahim Ayinla Akorede³

ABSTRACT

This study examines domestic Airline performance in Nigeria when indigenous airline operations began in the early 50s in Nigeria. The objectives of the study are to, examine the trend of airline registration and failures in Nigeria; secondary data was used in eliciting information for the study. The Secondary data was sourced from the Nigeria Civil Aviation Authority (NCAA), The Corporate Affairs Commission (CAC) to address the objective. The study used descriptive, inferential statistics, trend analysis to analyze the data based on the stated objectives. 179 number of airlines were registered in total, forecast of the number of airlines to be registered in the 5th and 20th decade were predicted using the equation: $y = 3.631x + 6.0357$ and an $R^2 = 0.2146$ at 53 and 79 airlines. The total no of the failed airline from the study is 95. The findings of the study provide insight and updates into the exactitude of the number of registered and failed airlines, trends and rates of airline failure in Nigeria from inception to date, Model that can predict the number of airlines registered and the number likely to fail in the future was developed.

Keywords: Airlines, Performance, Registrations, Failures, Trend.

1. INTRODUCTION

Airline travel dates back to 1903 when two Ohio brothers made a significant breakthrough when they flew the first aircraft, codenamed the Wright Flyer 1. The Wright brothers' invention revolutionized one of the world's largest industries - travel and tourism. As a catalyst for global business, investment, and tourism actualization, commercial air travel has dynamically changed the economic and spatial environment. In Nigeria the history of air travel can be traced to 1925 when three aircraft landed in Kano from Helwan near Cairo in Egypt, the purpose of that trip was to gain experience in long-distance travel across the tropics.

Gbadamosi and Adekunle, (2018) believe that the air travel sector has significantly contributed to the global and Nigerian economies in two major ways; First, through taxes levied on gross value added, which is the sum of profit and wages and its investments of large sums in uses of advanced technology systems to

operate and maintain it, another significant contribution is its facilitation of foreign direct investment (FDI). The demand for air travel services has increased the influence of airline services in the nation and global economy, thereby enhancing rapid movement of passengers, goods and services in the domestic and world market. This in effect helps to generate higher revenue to the economy by way of fast in and out flow of goods and services occasioned by foreign direct investment. The Nigerian aviation industry contributed 41.185 billion naira to gross domestic product in 2012, and it contributed close to 150 billion naira in 2018. By 2019, the figure had grown by 33% to nearly 200-billion-naira Nigerian Bureau of Statistics, (2019).

Comparing these figures with other forms of transportation in Nigeria, the Nigerian air transport accounts for 6-7% to transport GDP making it the second highest share of modal contribution to transport output while the road subsector contributes 84%. In spite of the numerous advantage air travel offers and the continuous growth witness in the industry, failure and collapse of airlines has persisted. This paper hopes to examine the trend in airlines registrations and failure. The industry has in times past witness a high turnover of domestic new carriers since deregulation unfortunately many of them has been short lived, with many folding up few years after start of operations, (Uhuego et al., 2019). As of 2019 there were only eight active schedule domestic passenger's carriers in the Nigeria airline industry, this size is ricolously low compare to the share poulation of over 200 million Nigerians whom are potential flyer.

Recent trends on aviation data indicates Nigeria airline industry is rapidly growing and the demand for air travel is on the increase and projected growth is 4.3% per annum over the next 20 years, airlines would see an extra 199 million passengers by the year 2037, and the aviation industry in Nigeria must be ready for such growth. While this is good news, unfortunately, the problem is that a lot of licenced and Nigeria registered airlines, according to the NCAA data base have shut down over the past years over failure related reasons.

Should this trend continue, the industry would not be ready for this expected growth? One way Nigeria's airlines industry can be ready for the expected growth is to make to ensure that new and more airlines are licensed and registered and avert failures in years to come. This can be achieved by looking at the historical trend of Nigeria airlines registration and licensing with a view of sustaining the tempo to avert failures. Therefore, this study assessed the analytical trend in airlines registered and failure in Nigeria by doing an analytical assessment of what had happened, still happening in Nigeria and the future trend. Again, assessed the domestic airlines performance in Nigeria, with a view of discovery the number of airlines registered and the failed since the inception of domestic air travel in Nigeria organizational failure is, therefore, necessary to discuss this theme effectively.

2. LITERATURES REVIEW & METHODOLOGY

Organizational failure Organizational failure is often attributed to organizations' tendency to maintain the status quo and their inability to draw lessons from past mistakes (Baumard and Starbuck, 2005). Different academics have presented differing perspectives on what constitutes organizational failure over time. For example, some argue that it can be defined as the closing of the business Schwarz et al., (2021), the transfer of ownership of the business Everett and Watson, (1998), or both. A business may cease operations when the owner chooses to step down and sell their assets to a willing buyer. A constraint of the aforementioned perspective is that it confines failures to rates of admission and departure (Everett and Watson, 1998). After the proprietor retires, many businesses frequently stop operating. According to Hager et al., (1996), organizational failure is the state in which a business ends operations and loses its identity as a result of its inability to respond and adapt to changes in the external environment promptly.

In summary, firm failure is the actual end of the firm upon going out of business, or the entire dissolution of the organization (Vansteenkiste and Mark, 2008). An intricate example of a corporate organization is the airline industry, which consists of some entities including planes, airports, maintenance centres, and travel agents that collaborate to offer seamless services to customers. Airports handle facilities, security, and ground services; airlines handle the scheduling of flights, crew management, fleet maintenance, ticket sales, and customer support services. The industry structure demonstrates the manner in which different organizations work together to provide passengers with a comprehensive service. When an airline is unable to continue operating because of financial insolvency or other operational inefficiencies, it is considered to have failed. It has been determined that a combination of internal and external factors can cause a firm to fail or succeed, (Amankwah-Amoah, 2016).

Other conceptual definitions of organizational failure include Walsh and Cunningham, (2016), which states that organizations enter a state of decline when they are unable to anticipate, forecast, observe, avoid, overcome, or adapt to internal or external forces that have

a detrimental impact on the organization's long-term survival. Witteloostuijn, (1998) defines decline as the process of shrinking performance over a lengthened period. The theoretical framework of this study is hinged on theory of demand and supply which finds its applicability in the airline with, the work of which states that airline performance which is basically influenced by the interplay of passenger demand and available supply of flights and seats and fluctuations in travel demand due to factors like economic conditions, seasonality or global events, all this can affect the trend of airlines registration. Supply factors such as fleet size, route networks and competition also play significant role in affecting airlines in registration and failure.

The methodology, employed is exploratory and survey designs for this study. The exploratory design was used as a method of collecting data from regulators, the Nigeria Civil Aviation Authority, (NCAA), and from the Corporate Affairs Commission of Nigeria. Descriptive statistics and trend analysis were used to analyse the data for the study.

3. RESULT AND DISCUSSION

The Trend/Number of Airlines’ Registration and Failure since 1950 to Date

The Trend/Number of Airlines’ Registrations and Growth

The data is subdivided into decades, spanning from 1950-2029, each decade represents a period in which the airline's registration was recorded. The study found a total of one hundred and seventy-nine airline registrations in Nigeria between 1950 and 2023, with the period between 1950 and 1959 having the least registration and 1960 to 1969 having no registration at all. This was the formative years and also happened to be when Nigeria experienced civil war (1967 to 1970). Immediately after the war, the registrations increased to ten between 1970 and 1979 and continued till it peaked in the period between 1990 and 1999.

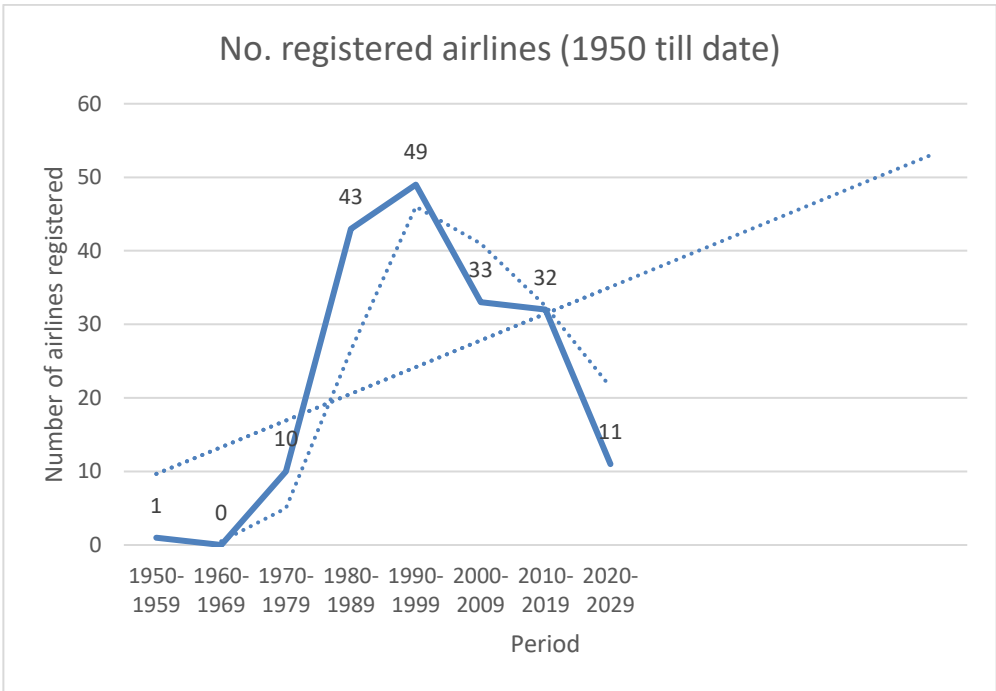
In fact, 1983 marked the year the sector was deregulated and more airlines entered the industry and peaked in the 1990s when we had full deregulation of the sector. This is presented in (Table 1). The cumulative frequency in the 1950s is 0, as it is the starting point. By the end of the 1990s, the cumulative frequency had reached 103, indicating the total number of registrations up to that point. And by the 20 20s, the cumulative frequency had reached 179 being the total number of airlines registered to date.

Table 1 Trend/Number of Airlines’ Registrations and Growth

Period	No. registered	Cumulative frequency
1950-1959	1	0
1960-1969	0	1
1970-1979	10	11
1980-1989	43	54
1990-1999	49	103
2000-2009	33	136
2010-2019	32	168
2020-2029	11	179
Descriptive statistics for airlines’ registration		
Mean	13.57143	
Standard error	4.7752519	
Median	10	
Mode	31	
Standard deviation	12.63404	
Sample variance	159.619	
Kurtosis	-1.30617	
Skewness	0.802398	
Range	29	
Minimum	2	
Maximum	31	

Sum	95
Count	7

Source: Field work, (2023).



Source: Field work, (2023).

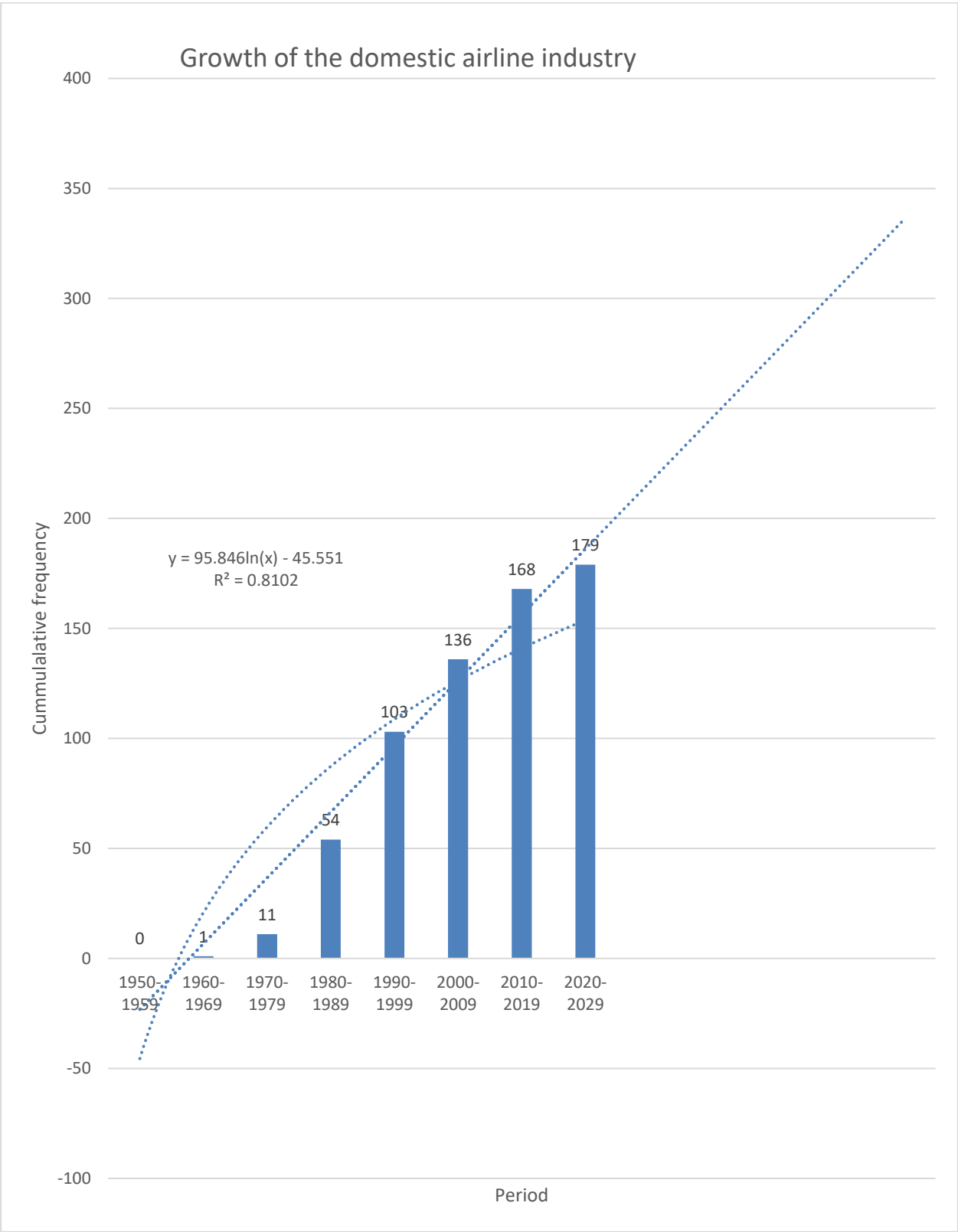
Figure 1 Trend of Number of registered airlines since 1950 till date

The analysis of the registration was further put to a trend test and it generated in the Figure 1, which showed that a general increasing trend in airline registrations from 1950s to the 1990s were observed. There was a decline in registration in the 2000s and 2010s and by the 2020s we saw a significant drop in registration compared with previous decades, which could be influenced by the various economic factors and factor such as the COVID-19 pandemic. Registration peaked in the decade between 1990 and 1999. The trend analysis model is depicted by the equation $y = 3.631x + 6.0357$ and $R^2 = 0.2146$, where y is the number of registered airlines and x is the period. The trend showed that in the next five decades, the registration will continue to increase and by the fifth decade from now, an average of 53 airlines will be registered.

With this equation

$y = 3.631x + 6.0357$ 1

It is possible to predict for any decade (ten-year period in the future what will be number of airlines that would have been registered by the time. For example, by the 20th decade from the base decade, there would be 79 airlines registered airline for the decade, indicating the airline industry is bound to keep growing.



Source: Field work, (2023).

Figure 2 Growth of registered airlines since 1950 till date

Figure 2 showed the growth of the airline industry. In the first decade from 1950 to 1959, only one airline was registered in Nigeria and that was Star Airlines International Limited (Appendix 1). There was no new registration of airline in the second decade but growth started in the third decade as 10 airlines were registered. These include delta Air Charter, Trans-Meridian Air Nigeria Limited, West African Air Cargo Limited, Kabo Air Limited to name a few. The list of others and their respective years of registration are shown in (Appendix 1). The airline industry had a huge growth from 1980 to 1989 with 43 more airlines making a cumulative 54 airlines registered in Nigeria. Between 1990 and 1999, the growth reached 103 as 49 new airlines were registered.

By 2009, it had reached 136 registered airlines in Nigeria and a further 33 airlines had joined. The growth trend continued to 168 registered airlines in 2019, with a total of 32 new airlines added from 2010. In the last three years (since 2020), it is interesting to note that 11 new airlines have been registered, indicating an upward growth. The future trend can be inferred as it steadily grows that by the fifth decade from now, it would have grown to about 340 airlines in Nigeria. This is in agreement with the studies of Uhuego et al., (2019) who's predicted the contineos growth of the airline with more investors into the industry.

The Trend of Airlines Failures

The Table 2 above represent data related to the time frame of the study, the number of failures within each period, cumulative frequencies and percentage changes between consecutive periods. Mean (average); to find the mean number of failures in each period and divide by the number of periods. In this case, you have a total of 95 failures over 8 periods:

$$\text{Mean} = \frac{(2+1+1+4+16+36+29+6)}{8} = 11.875$$

8

Table 2 Trend of Airlines Failure in Nigeria

Period	Number failed	Cumulative frequency	Percentage change
1946-1955	2	0	0
1956-1965	1	3	-100
1966-1975	1	4	0
1976-1985	4	8	300
1986-1995	16	24	1200
1996-2005	36	60	2000
2006-2015	29	89	-700
2016-2023	6	95	-2300
Descriptive statistics for failure			
Mean	11.875		
Standard error	4		
Median	5		
Mode	1		
Standard deviation	13.74708		
Sample variance	188.9821		
Kurtosis	-0.41145		
Skewness	1.092956		
Range	35		
Minimum	1		
Maximum	36		
Sum	95		
Count	8		

Source: Field work, (2023).

Median

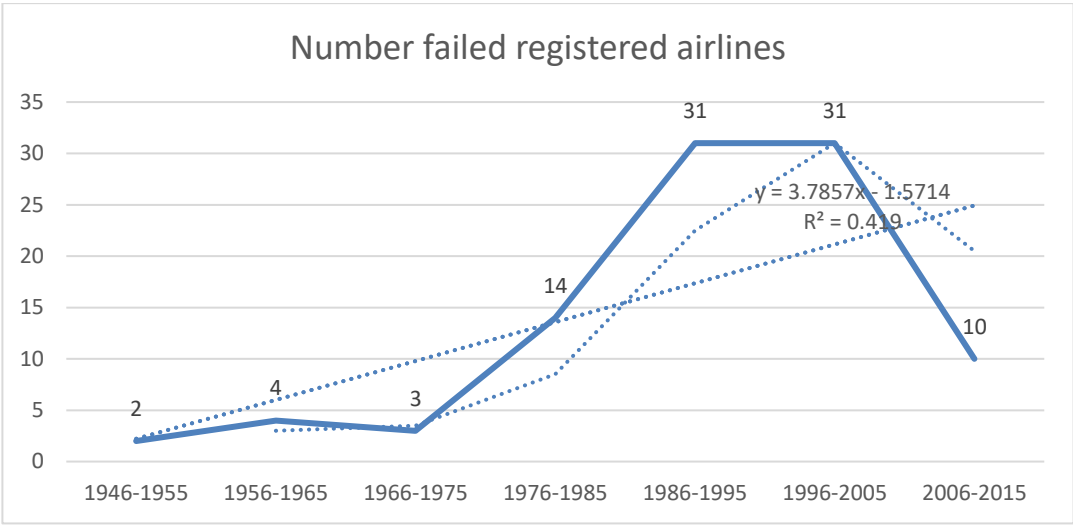
The median is the middle value when the data is arranged in ascending order. Since you have 8 data points, the median is the value at the 4th position (when sorted): Median =4

Mode

The mode is the value that appears most frequently. In this case, the mode is 36 because it occurs more often than any other value.

Range

The range is the difference between the maximum and minimum values in data. The maximum is 36, and the minimum is 1, therefore range is 1: Range = 36-1=35

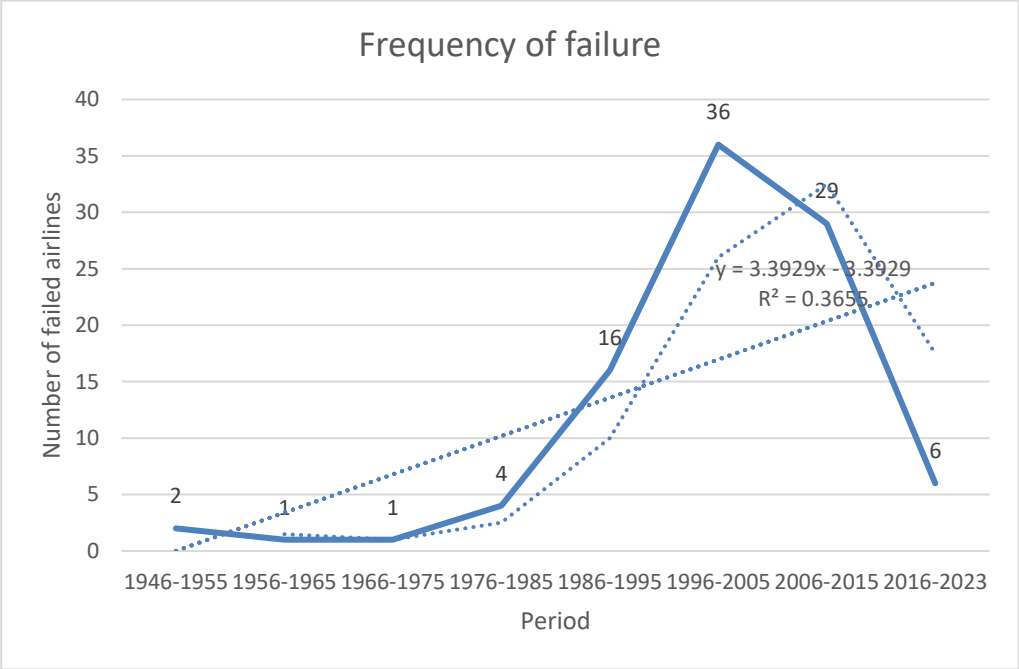


Source: Field work, (2023).

Figure 3 Trend of failed registered airlines in Nigeria

Figure 3 showed that from 1946-1955 to 1956-1965, there was a 100% decrease in the number of failures, this marked the takeoff time of the airline industry in Nigeria and not much had been known by the new operators in the industry most of whom were even foreigners. From 1956-1965 to 1966-1975, there was no change (0% change). However, from 1966-1975 to 1976-1985, there was a 300% increase in the number of failures, this is the due to many airlines that seized to operate because of the civil war of 1967 to 1970 and the sluggish growth that the airline industry suffered due to the war and the concentration of the Federal Government in rebuilding the road sector that suffered so much during the war. Again, the deregulation of the airline industry that led to more entries into the market, many of whom were not adequately prepared for the industry but joined because of the lifting of barriers that prevented them from joining earlier the local airline industry, saw more airlines join the market and many also fell by the way with time, this resonates with (Uhuego et al., 2019).

That partial deregulation was a way for Nigeria to grow the sector, it started the growth but saw many of the new airlines folding up not far from the time of their incorporation and maiden flights. As a nation we failed to learn lesson why those airlines failed and so from 1976-1985 to 1986-1995, there was a 1200% increase as full deregulation took place as many more airlines joined the sector. The ugly trend continued into the period 1986-1995 to 1996-2005, when there was a 2000% increase. This also shown on Figure 1, where the frequency of failure can be seen to have peaked in the 1996 to 2005 which coincidentally happened to be the period Nigeria suffered so much airline crashes. Again from 1996-2005 to 2006-2015, there was a 700% decrease and a further decrease of 2300% from 2006-2015 to 2016-2023. This can be attributed to the coming to maturity of the airline industry and the Nigerian civil aviation sector as there had been improvement air navigation system and management of the sector.



Source: Field work, (2023).

Figure 4 Trend of airlines failure in Nigeria

The rate of failure of airlines in Nigeria is twelve (11.875) airlines failed every ten (10) years. Whereas, about fourteen (13.57143) airlines are registered every ten (10) years (Figure 4). Between 1946 and 1955, two airlines failed. The number of failed airlines dropped in the next decade (1956-1965) to one airline, the same happened between 1966 and 1975. However, the number of entrants into the airline section increased and we had four airlines that failed between 1976 and 1985. After the partial deregulation of the 1980s and with more airlines joining after registration, the number of airlines that failed increased to sixteen airlines. This was a bad occurrence and should have served as a rallying call to all the stakeholders but lessons seem not to have been learned. In the period after the full deregulation, 1996 to 2005, a total of 36 airlines failed. There was a reprieve as the number of failed airlines dropped in the next decade (2006 to 2015) to 29. This is still quite alarming but it is signal that the industry is attaining maturity. This is further cemented by the fact that since 2016 to date, only six airlines had failed showing a great decline and proof of lessons learned.

Length of Years of Operation before Failures

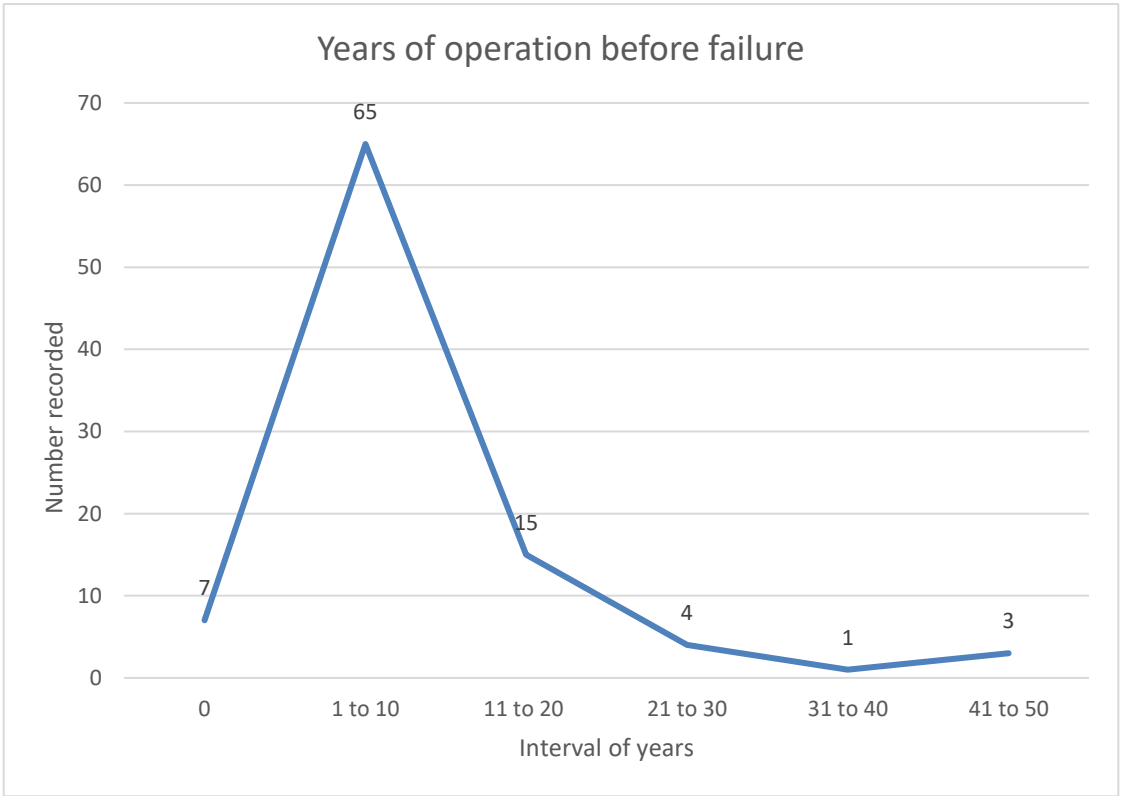
The study showed that on the average it takes about 7.9 years for registered airlines in Nigeria to fail (Table 3) that is about eight (7.905263) years on average for newly registered airlines to operate before it will experience failure. Therefore, we can confidently say that by the ninth (9th) year if an airline in Nigeria did not fail, post-registration operation, the probability of failure diminishes.

Table 3 Descriptive Statistics for Time between Registration and Failure

Descriptive statistics for time between registration and failure	
Mean	7.905263
Standard error	1.045341
Median	5
Mode	1
Standard deviation	10.18872
Sample variance	103.8101
Kurtosis	10.56101
Skewness	2.93347

Range	62
Minimum	0
Maximum	62
Sum	751
Count	95

Source: Field work, (2023)



Source: Field work, (2023).

Figure 5 Trend of airlines failure in Nigeria

From Figure 5, it can be seen that the dataset presents the years of operation before the failure of airlines and their respective frequencies. This is breakdown as follow: 0 years – seven (7) airlines failed within their first year of operation; 1 to 10 years – sixty-five (65) airlines failed within the first decade; 11 to 20 years – fifteen (15) airlines failed in the second decade; 21 to 30 years – four (4) airlines failed in the third decade; 31 to 40 years – one (1) airline failed in the fourth decade; and 41 to 50 years – three (3) airlines failed in the fifth decade. This mean that in Nigeria local airline industry fail within the first 10 years of operation. The number of failures decreases as the years of operation increase, with only a few airlines operating for longer periods before failing. Nigeria Airways failed after forty-five (45) years of operation. The oldest failed airline is Aero Contractor as it failed after sixty-two (62) years having been registered, incorporated and operated since 1960 and closed shop in 2022. However, it was resuscitated back to life in March 2023 and now very active but with a reduced fleet size and coverage.

4. CONCLUSION

This study provided further significant insight to airlines performance in terms of registration and failure over time in Nigeria from the period schedule airlines services began. It has established the total no of airlines registered from the early the 1950 to 2023. It also revealed the total number of airlines that failed within the same time frame as 95 airlines. The study also show that it takes average of

8years for airlines to fail in Nigeria and by the ninth (9th) year if an airline in Nigeria did not fail, post-registration operation, the probability of failure diminishes.

There was a growth trend of the number registered from 1 airline in 1946, to 179 airlines in 2023 and the trend in the failure rate and the results shows that from 1946-2023 a total of 95 airlines failed, the least period of failed airline was in 1946-1955, 1956-1965 and 1986-1995, 1996-2005 was the period with the highest no of failed airlines as it was 2000%, this period suffered more crashes and it was period of airlines recapitalisation and failure to meet with recapitalisation cost, led to failure of some of the airlines examples includes Bellevue, ADC and Albarka airlines. An average of 12 airlines failed every 10 years period, while average of 14 airlines are registered in every 10 years period, this at a ratio of 6:7 airline registered to the no of failed airlines conclusively. The federal government of Nigeria should sustain the deregulation policy that birthed new entrants into the airline business as it increases the number of new entrants in to the industry as it was witness between years 1990 to 2000 the peak of deregulation.

Informed consent

Not applicable.

Ethical approval

Not applicable.

Conflicts of interests

The authors declare that there are no conflicts of interests.

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Data and materials availability

All data associated with this study are present in the paper.

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